CHAPTER 1

Understanding AD/HD

"For many people, AD[/H]D is not a disorder but a trait, a way of being in the world. When it impairs their lives, then it becomes a disorder. But once they learn to manage its disorderly aspects, they can take full advantage of the many talents and gifts embedded in this sparkling kind of mind."

– Hallowell and Ratey 2005, p. 4

Attention Deficit/Hyperactivity Disorder (AD/HD) is one of the most widely researched conditions of both childhood and adulthood. This research has increased awareness and understanding, but also created a media explosion of information, misinformation and conflicting opinions.

The research in this area is both optimistic and hopeful. Edward M. Hallowell says that AD/HD is "a misleading name for an intriguing kind of mind" and that it is more useful to view it simply as "a name for a collection of symptoms, some positive, some negative" (Hallowell and Ratey 2005, p. 4).

Inspired by Hallowell and other individuals who are both living with AD/HD and working with individuals with AD/HD, this resource offers practical information and sample strategies that teachers can use to help students with AD/HD manage learning so that school is a successful and satisfying experience for them and their families.

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MYTH

AD/HD is not a real condition.

FACT

AD/HD is a neurobiological condition characterized by differences in brain functioning that affect behaviour, thoughts and emotions.

What is AD/HD?

Attention Deficit/Hyperactivity Disorder (AD/HD) is a neurobiological condition that can cause inattention, hyperactivity and/or impulsivity, along with a number of related difficulties, inappropriate for an individual's age.

What does AD/HD look like in the classroom?

Students with AD/HD frequently struggle in academic areas. About 30 to 50 percent[1] of these students also have learning disabilities. Even those without learning disabilities frequently experience difficulties in reading, writing and mathematics because of difficulties related to attention and short-term memory.

Reading

Students with AD/HD may have strong decoding and word recognition skills but struggle with recall and comprehension of reading material because of a tendency to skim read or word-read without attention to meaning.

Writing

Many students with AD/HD have difficulty with writing. Common difficulties include spelling, editing, self-monitoring, and generating, planning and organizing ideas. Underdeveloped fine motor skills may contribute to difficulty with the physical act of writing legibly with speed and precision. These difficulties may result in fatigue, inefficiency and frustration. A hasty approach to a task can also affect legibility.

Mathematics

Students with AD/HD may have difficulty remembering math facts and procedures. Inconsistent performance may also be due to careless errors (e.g., failure to notice operational signs) and neglect of self-monitoring strategies. Slow and inefficient copying and misaligning of numbers may also interfere with success in math.

1. MTA Cooperative Group 1999.

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Characteristics of inattention, hyperactivity and impulsivity in the classroom include difficulties in:

- keeping track of personal belongings and school supplies
- getting started on tasks
- sitting still and focusing attention on the task at hand
- regulating attention to tasks and to people
- organizing or following through on instructions, assignments and classroom duties
- organizing and managing time
- planning for and completing written assignments (both short-term and long-term)
- working independently (e.g., completing paper-and-pencil tasks at desk)
- self-monitoring
- maintaining consistent quality and quantity of work from day to day, and at different times in the same day
- participating in classroom discussions (e.g., waiting turns, staying on topic, listening to others)
- dealing with change and transitions, including moving from one activity to the next during the school day and moving from grade to grade or from school to school.

What causes AD/HD?

Research suggests that AD/HD is most likely caused by abnormalities in certain chemical messengers (neurotransmitters) in the brain. In simple terms, the brain is inefficient or sluggish in the areas that control impulses, screen sensory input and focus attention.

No one direct cause for AD/HD has been identified. AD/HD tends to run in families and heredity appears to be an important factor, accounting for 50 to 80 percent[2] of children with AD/HD. Parents and siblings of children with AD/HD frequently have similar symptoms. Like many traits of behaviour and temperament, AD/HD is genetically influenced, but not genetically determined.

Other possible causes of AD/HD have been suggested. These include trauma to the developing fetus caused by disease or injury, or exposure to alcohol, cigarettes/nicotine and environmental toxins. Babies who are born prematurely or with low birth weight are also more likely to become children with AD/HD.

2. Levy and Hay 2001.

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MYTH

AD/HD is a North American problem.

FACT

AD/HD is found in boys and girls in all cultures around the world and is not specific to socioeconomic status.

Who is affected by AD/HD?

Current statistics suggest that AD/HD is a fairly common disorder and that 4 to 12 percent[3] of North American school-aged children are affected by AD/HD. Problems with AD/HD continue into adulthood. It occurs in both males and females, although according to the most recent research, there are a number of common gender differences.

- Nearly 50 percent[4] of all children with AD/HD—mostly boys—tend to also be diagnosed with oppositional defiant disorder, but these disorders exist as two distinct conditions.

MYTH

AD/HD only occurs in boys.

FACT

Boys are four to nine times more likely to be diagnosed; however, the disorder occurs in both boys and girls.[4]

- Girls are more prone to inattentive type AD/HD, which is marked by disorganized and unfocused behaviour rather than the disruptive, impulsive conduct typically seen in boys.
- Girls with AD/HD tend to have higher rates of overall distress, anxiety and depression compared to boys with AD/HD.
- Girls may find their AD/HD symptoms are intensified by monthly hormonal fluctuations.

What are the characteristics of AD/HD?

There are many characteristics that might indicate AD/HD. They vary from individual to individual, and in individuals, from age to age and from situation to situation. Generally, the characteristics are clustered under the general categories of inattention, hyperactivity, impulsivity, social-emotional difficulties and the overarching category of executive functions.

3. Brown, Freeman and Perin 2001.
4. Biederman et al. 2002.

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Inattention

- losing or forgetting things
- poor listening (e.g., frequently appearing to "tune out")
- difficulty following instructions
- tendency to miss important details
- tendency to rush through tasks and make careless errors
- difficulty staying on task and completing assignments
- difficulty with short-term memory and recall
- organizational difficulties (e.g., keeping notebooks and supplies in order, planning for multi-step projects)
- problems with focusing and maintaining attention
- distractibility
- tendency to daydream (e.g., appearing lost in own world).

Hyperactivity

- restless and always on the go (e.g., appears "driven by a motor")
- squirming and fidgeting (e.g., finger tapping, foot tapping, knuckle cracking, rocking)
- difficulty staying seated or being quiet when required
- excessive talking.

Impulsivity

- acting without planning or thinking first
- difficulty following rules and sequences of steps
- blurting out inappropriate remarks
- disturbing or interrupting others
- demonstrating impatience at inappropriate times (e.g., difficulty waiting in lines or taking turns)
- difficulty managing frustration and other emotions (e.g., getting angry or over-reacting with little or no provocation)
- demonstrating unsafe behaviour
- difficulty considering consequences
- difficulty managing transitions from one activity to the next.

Social-emotional difficulties

Inattention, hyperactivity and impulsivity can also contribute to social-emotional difficulties such as:

- limited confidence in self as a learner
- limited success as a team player
- misinterpreting social cues
- emotionally overreacting
- difficulty managing anger.

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Executive functions

A hallmark of AD/HD is impairment of higher level brain functions required to perform the following kinds of tasks:

- regulating alertness, sustaining effort, and processing information at consistent and appropriate speeds
- focusing and sustaining attention
- organizing and prioritizing tasks
- planning and using foresight
- self-monitoring and regulating actions
- remembering details and accessing short-term memory
- distinguishing essential from nonessential detail
- elaborating on single or basic points
- delaying gratification
- inhibiting behaviours
- managing frustration and other emotions
- evaluating information and own performances.

MYTH AD/HD is overdiagnosed among children.

FACT

Currently, it appears that AD/HD may be overdiagnosed in some places but it is underdiagnosed in many others. There appears to be a few regions where an inordinate number of children are labelled as AD/HD but at the same time, there are many regions where medical doctors may not have the expertise to accurately diagnose this disorder. AD/HD is not a particular belief: it is a medical diagnosis derived from solid evidence and research.

How is AD/HD diagnosed?

A key to the successful management of AD/HD is a comprehensive assessment and accurate medical diagnosis. Children with AD/HD exhibit a range of behaviours and levels of severity. Individuals with AD/HD may be predominantly inattentive, predominantly hyperactive/impulsive or a combination of both. To warrant a diagnosis of AD/HD, the behaviours must:

- be exhibited to an abnormal degree for the child’s age or developmental stage
- have been present to some extent prior to age seven
- have been present for at least six months
- have a negative impact on the child’s ability to experience academic and/or social success
- be present in multiple settings.[5]

5. Adapted with permission from the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision, (Copyright 2000), pp. 92, 93. American Psychiatric Association.

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The student who is brighter-than-average may be able to successfully compensate for many of the symptoms of AD/HD and may not be diagnosed until later in life when circumstances and/or expectations change.

Many of the characteristics, or symptoms, of AD/HD are present for all of us at some times and under some circumstances. The diagnostic process involves gathering information to determine the intensity, duration and pervasiveness of the symptoms and their negative impact on the life of an individual. As the behavioural characteristics of AD/HD can be a result of other disorders, a thorough assessment by a qualified professional is essential in order to rule out other disorders and make a differential diagnosis.

Currently, there is no valid test for AD/HD. No specific physical or neurological findings can definitively establish the diagnosis through procedures such as blood tests, brain scans or EEG (brainwave recording). The diagnosis of AD/HD is made by gathering information from the child, parents, teachers and others, combined with direct observation and information from other sources. Neuropsychological performance assessments are often used to augment information collected from interviews, behavioural checklists and observations. The Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA) strongly recommends that an assessment of AD/HD include evidence directly obtained from parents and teachers who may be able to provide information on age of onset, duration of symptoms, variation of symptoms in different settings, coexisting conditions, and degree of functional impairment.

Identifying students with AD/HD

The observations of parents and teachers are key to accurately identifying students who are experiencing difficulties that may be attributed to AD/HD. Initial concerns may come from parents, teachers or students themselves. While AD/HD is a lifelong condition, the negative impact of the symptoms may occur at different ages and thus referrals for assessment and diagnosis may occur at any time during an individual's life span. Transition times, such as moving from one grade level to another, may be challenging for some students and negative AD/HD characteristics may become more pronounced at these times.

Preschool years

Parents may be concerned about their child's extremely high activity level in comparison to siblings or to other children of the same age. They may fear for their child's safety and observe that their child's behaviour often puts him or her at risk of harm. They may find their child difficult to manage and to discipline or suspect the child has a hearing difficulty.

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Elementary school years

Teachers and parents may have concerns about a child's underachievement, poor productivity, inefficient approach to tasks and behaviour difficulties. For example, the child may seem to have sufficient skills, but has significant difficulty starting and completing assigned work. The child may socialize at inappropriate times, and be disorganized with materials and assignments. There are often concerns about peer relationships, particularly finding and keeping friends. At home, parent-child conflicts may arise over follow-through of chores such as keeping his or her room tidy.

Junior and senior high school years

Students referred during these years may have been able to cope with the demands of elementary school with support from home and school. There may have been some difficulties from earlier years, but the student was not disruptive and managed to keep up with school demands. Now, there are increases in the expectation for greater independence and in the need to juggle multiple demands. The volume of work, particularly of written output, increases and the student struggles. Particular difficulties include dealing with deadlines, coping with complex assignments and handling new social situations.

Adult years

Adults may seek an explanation for their many years of struggle. They may be experiencing challenges in their personal relationships, post-secondary education and the workplace.

MYTH

All children with AD/HD have behavioural problems.

FACT

Although approximately 50 percent of children with AD/HD develop behavioural difficulties, 50 percent do not demonstrate significant problems with behaviour.

Assessment process

Usually referrals go beyond an investigation of AD/HD and consider additional difficulties, such as underachievement or behaviour problems. There are many potential reasons why students may experience difficulties with inattention, hyperactivity and impulsivity—AD/HD is not always the explanation. Coexisting conditions that can result in behaviours similar to the symptoms of AD/HD may include:

- underachievement at school due to learning disabilities
- attention lapses caused by petit mal seizures
- middle ear infections that cause intermittent hearing problems
- disruptive or unresponsive behaviour due to anxiety or depression
- school work that is too hard or too easy
- insufficient sleep on an ongoing basis

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- poor nutrition
- significant personal or family disruption
- situations of abuse or neglect
- drug and alcohol use
- medical, neurological or psychiatric conditions (e.g., hyperthyroid, allergies, diabetes, fetal alcohol spectrum disorder, bipolar disorder).

Physicians (including family doctors, pediatricians, neurologists and psychiatrists), psychologists and clinical social workers who have relevant training and experience in the assessment of AD/HD are qualified to make this medical diagnosis. However, a multidisciplinary team approach is preferred because of the complex nature of the disorder, the high probability of coexisting conditions and the potential for multiple causes of AD/HD symptoms.

A thorough assessment of AD/HD will include interviews, observations, rating scales and psychoeducational testing.

Interviews

Interviews are the core of an AD/HD assessment. Parents are interviewed to develop a picture of the child's development and current functioning. Birth history, developmental history, medical history, educational history and family history are all important to determine the severity, frequency, duration and pervasiveness of the child's difficulties. Medical history is also important to rule out vision, hearing and other medical problems that may account for the difficulties. The child or teen is interviewed to obtain his or her perspective. Teachers also may be interviewed to provide a picture of past and present learning difficulties and related behaviours.

Observations

Observing the child's behaviour in various settings, including school, home and social situations, is very valuable for determining the range and severity of AD/HD symptoms. How the child responds and participates in classroom settings is particularly important. In addition, observations during interviews and assessments can provide valuable insight into how the child responds to certain situational demands (e.g., answering questions, engaging in conversation, sharing personal information, performing academic or other tasks requiring sustained mental effort). Teacher comments on report cards can also provide valuable observations over the years.

Rating scales

Rating scales provide a structured method for comparing a child's behaviour to that of same age peers. Commonly used rating scales include questionnaires for parents and teachers, and student self-reports. AD/HD-specific rating scales allow for a more in-depth analysis of specific behaviours related to problems with inattention, impulsivity and hyperactivity.

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Psychoeducational assessments

Many other disorders frequently coexist with AD/HD. Additional assessment information can be helpful in determining whether or not AD/HD-type symptoms are the product of another disorder. Diagnostic tests such as cognitive assessments, academic achievement tests or depression inventories may be used for the assessment of other coexisting conditions such as learning disabilities, depression or anxiety. Academic achievement information is also valuable in understanding the impact of AD/HD symptoms on learning and school performance. During the assessment, psychologists also take opportunities to observe directly the student's approach to tasks.

Making a diagnosis

In North America, diagnosticians are guided by the criteria for AD/HD outlined in the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV). These guidelines are not intended to be used in isolation to diagnose AD/HD but to provide a common language and set of standards.

Although the terms "Attention Deficit Disorder" (ADD) and "ADD without hyperactivity" are used frequently, the following DSM-IV terminology for three subtypes of AD/HD is recommended.[6]

MYTH

All children with AD/HD are hyperactive.

FACT

A person with AD/HD may not necessarily demonstrate hyperactivity. In fact, some individuals with AD/HD-predominantly inattentive type may appear to lack energy, and seem quiet and reserved.

AD/HD—predominantly inattentive type

This subtype includes six or more symptoms of inattention (but fewer than six symptoms of hyperactivity-impulsivity) that have persisted for at least six months.

AD/HD—predominantly hyperactive-impulsive type

This subtype includes six or more symptoms of hyperactivity-impulsivity (but fewer than six symptoms of inattention) that have persisted for at least six months.

AD/HD—combined type

The most common form of the disorder, this subtype includes six or more symptoms of inattention and six or more symptoms of hyperactivity-impulsivity that have persisted for at least six months.

6. Adapted with permission from the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision, (Copyright 2000), p. 87. American Psychiatric Association.

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The information gathered through interviews, observations, rating scales and psychoeducational testing is reviewed to establish whether the onset, severity and pervasiveness of the symptoms meet the DSM-IV criteria for AD/HD, and to rule out other medical, psychological or environmental factors that might be primary causes of the child's current difficulties. A diagnosis also includes identification of the subtype, either predominantly inattentive, predominantly hyperactive-impulsive or combined type. Additionally, assessment information can be used to inform treatment and educational planning.

FYI

The Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA) has recently published *Canadian ADHD Practice Guidelines* (2006) for physicians. For more information, visit www.caddra.ca/english/phys_guide.html.

What other conditions can coexist with AD/HD?

All of the items listed as alternative explanations for AD/HD symptoms may also coexist with AD/HD; that is, a child with AD/HD may also have these conditions or experience these situations. This condition is referred to as AD/HD Complex. Children who have no coexisting disorders may be classified as AD/HD Simple.

Two-thirds of children with AD/HD have at least one coexisting condition, so it is important to consider how another condition can cause difficulties and require support. The most common disorders to occur with AD/HD in children and adolescents are learning disabilities, behaviour disorders including oppositional defiant and conduct disorders, depression, anxiety, bipolar disorder, Tourette's syndrome, and fetal alcohol spectrum disorder (FASD).

Of children with AD/HD:[7]

30 to 50%	also have learning disabilities
40%	also have oppositional defiant disorder
25%*	also have conduct disorder
10 to 30%	also have depression
30%	also have anxiety disorders
20%	also have bipolar disorder
7%**	also have Tourette's syndrome.

* 45% of adolescents with AD/HD have a conduct disorder.

** 60% of individuals with Tourette's syndrome also have AD/HD.

7. MTA Cooperative Group 1999.

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If you suspect a student has undiagnosed AD/HD

When inattentive, hyperactive and/or impulsive behaviour in the classroom is interfering with the learning of an individual student, it is essential to look for effective strategies to address these learning and behaviour needs. Examples of strategies that are effective include: structuring the learning environment, cueing and prompting, strategy instruction, and positive behaviour supports.

If these attention-related difficulties persist and continue to interfere with the student's success at school, consider the following.

- Document observations about classroom performance and behaviour.
- Communicate with parents about your observations, and the interventions and supports being implemented.
- Check with last year's teachers and discuss these concerns. Were there difficulties and behaviours evident last year? If so, what kinds of strategies and supports were successful for this student? If the concerns were not present, explore the changes in curriculum and classroom expectations and/or changes in the student's life that might influence his or her attention and behaviour.
- Consult informally with other school staff who may have experience and expertise with AD/HD such as special education teachers, psychologists or school counsellors.

If the attention difficulties continue to be of concern and school staff suspect that a student may have AD/HD, an assessment to determine the reasons for the difficulties may be of benefit to the student. There are many reasons for attention difficulties. It is vital that teachers be cautious in the way they express their concerns to parents. A team is the best forum for recommending an assessment for AD/HD to parents. At a minimum, another school professional (for example, a school counsellor or psychologist) should join the teacher.

Consider the following when communicating with parents.

- Communicate care and concern for the student.
- Objectively describe the student's behaviour and performance in class, including both strengths and needs.
- Emphasize the difficulties the student is having with learning and/or social interactions, rather than the problems that the student's behaviour may be causing school staff.

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- Avoid language that implies a diagnosis or labelling of the student as having AD/HD.
- Introduce the possibility of an assessment for AD/HD by describing the student's difficulties, exploring the presence of such behaviours in the home setting.

Consider the following types of statements to use in communicating with parents.

- "We are seeing some behaviours in the classroom that seem to be interfering with your child's learning. For example … Do you see similar kinds of difficulties at home?"
- "These kinds of difficulties can have a physiological cause. Have you considered sharing these concerns with your family doctor, pediatrician or a registered psychologist?"

When meeting with parents, refrain from recommending or discussing medication. If parents want to discuss the issue of medication, suggest they share their concerns with medical professionals. Provide parents with details about the supports and strategies that will be provided at school, regardless of the parents' decision about pursuing an outside assessment and treatment options.

Does having AD/HD mean students have special education needs?

Since the educational needs of students with AD/HD vary widely, having a diagnosis of AD/HD does not necessarily mean that a student has special education needs that require specialized programming and accommodations. Many students with AD/HD can be successful in regular classrooms, and will benefit from differentiated instruction and positive behaviour supports that are typical components of most Alberta classrooms.

Some students with AD/HD may require special education programming because a coexisting disability such as a learning disability or emotional/behavioural disorder, in combination with their AD/HD, affects their ability to learn. The existence of a medical condition, such as AD/HD, in and of itself is not sufficient for a student to be designated by Alberta Education coding criteria for the category medical disabilities; the condition must have a significant impact upon academic performance and the student's ability to function in the school environment.

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FYI For more information on Alberta Education's special education coding criteria, visit www.education.gov.ab.ca/k_12/specialneeds/.

An Individualized Program Plan (IPP) is mandatory for any student with special education needs who is identified and coded using the Alberta Education special education coding criteria. The IPP must include:

- specialized assessment results
- current level of performance
- identification of strengths and areas of need
- measurable goals and objectives
- procedures for evaluating progress related to IPP goals
- identification of coordinated services
- medical information
- classroom accommodations
- plans for transition
- review of progress
- year-end summary
- parent signature.

Often, in addition to academic goals, one or more of the IPP goals for students with AD/HD will focus on such areas as applying strategies to improve organizational skills, self-monitoring and/or self-advocacy skills. All goals should involve skills or behaviours that will ultimately improve learning opportunities for that student.

FYI For more information on the IPP process, see Alberta Education's *Individualized Program Planning* (2006), Book 3 of the *Programming for Students with Special Needs* series at www.education.gov.ab.ca/k_12/specialneeds/ipp.asp.

A-1 For a sample IPP that illustrates goals that may be appropriate for a student with AD/HD, see Appendix A-1.

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What is the best way to manage AD/HD?

There are a variety of management approaches for supporting individuals with AD/HD. For students with AD/HD to be successful, it is essential that parents, school staff and other important individuals in their lives understand what AD/HD is, how it can affect the individual and how they can support that individual to manage his or her AD/HD. The following chapters offer information and sample strategies for supporting students with AD/HD.

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